UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,239	02/09/2004	Yuya Suzuki	P24589	7162

7055   7590   04/03/2009
GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER
STERRETT, JONATHAN G

ART UNIT	PAPER NUMBER
3623	

NOTIFICATION DATE	DELIVERY MODE
04/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

	Application No.	Applicant(s)
Office Action Summary	10/773,239	SUZUKI ET AL.
	Examiner	Art Unit	
	JONATHAN G. STERRETT	3623	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>19 February 2004</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-38</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-38</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All b) ☐ Some * c) ☐ None of:
       1. ☐ Certified copies of the priority documents have been received.
       2. ☐ Certified copies of the priority documents have been received in Application No. _____.
       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>5-13-04</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Summary

1.   This **Non-Final Rejection** is responsive to 9 February 2004. Currently **Claims**

1-38 are pending in the application.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Claim 1 is rejected under 35 U.S.C. 101 based on Supreme Court precedent,

and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101

process must (1) be tied to another statutory class (such as a particular apparatus) or

(2) transform underlying subject matter (such as an article or materials) to a different

state or thing. Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S.

584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v.

Deener, 94 U.S. 780,787-88 (1876).

An example of a method claim that would <u>not </u>qualify as a statutory process

would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory

process, the claim should positively recite the other statutory class (the thing or product)

to which it is tied, for example by identifying the apparatus that accomplishes the

method steps, or positively recite the subject matter that is being transformed, for

example by identifying the material that is being changed to a different state.

      Here, applicant's method steps, fail the first prong of the new Federal Circuit

decision since they are not tied to another statutory class and can be performed without

the use of a particular apparatus. Thus, **Claim 1** is non-statutory; **Claims 2-18** depend

on claim 1 and are similarly not statutory.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over "A

spreadsheet modeling approach to the Holt–Winters optimal forecasting", JV Segura, E

Vercher - European Journal of Operational Research, 2001 – Elsevier (hereinafter

Holt).

      Official Notice is taken of the following items:

      Production of a good adds to finished inventory.

      Sales of a good subtract from finish inventory.

Companies will produce goods to maintain inventory levels so that they have on hard inventory that can be sold.

Finished goods inventory at factories is used to replenish finished goods inventory at distribution locations, where the inventory can be sold or otherwise transferred to the customer.

Inventory forecasting is an important element in business management since too much inventory is costly from a cost standpoint (carrying cost of finished goods inventory) and to little inventory can hurt the supply chain (i.e. stockouts mean no inventory for customers).

Regarding **Claim 1**, Holt teaches:

A method of managing production quantity in a distribution system where products shipped from at least one factory are stocked in a single delivery center at every predetermined cycle and then supplied to customers from the single delivery center, comprising:

determining a standard inventory quantity of products to be stocked in the single delivery center for a time of at least one predetermined cycle ahead based on a shipment record of the single delivery center; and

page 179 top, Holt teaches a quantity of products shipped based on inventory – para 4, the inventory is determined based on demand (note the equation for forecasting one period ahead based upon demand (i.e. since shipping out of inventory equates to demand).

$$f_{t+\tau} = (F_t + \tau b_t) I_{t+\tau-p}, \quad 1 \leqslant \tau \leqslant p.$$

where f is the inventory at one time period ahead and is based upon F at the current

period (F is current inventory level). F is dependent upon demand (i.e. F is inventory

level based upon demand D according to:

$$F_t = \alpha \frac{D_t}{I_{t-p}} + (1 - \alpha)(F_{t-1} + b_{t-1}).$$

Thus Holt shows predicting inventory one period ahead based upon current level

inventory F and current level demand D.

determining a total assembly quantity of products to be assembled by the

at least one factory for a time of at least one predetermined cycle ahead based on

said determined standard inventory quantity of the single delivery center and an

actual inventory quantity of the at least one factory.

Holt shows what is known in the art regarding the link between inventory and

demand, i.e. that is, that inventory decreases as demand decreases it (or in other

words, a sold good decreases what inventory is on hand, and using Holt's techniques

allow one to forecast future inventory periods based upon current demand and

inventory.

Official Notice is taken that production of finished goods is known in the art to

add to inventory, that is, production of an item is added to the inventory.

Holt does not explicitly teach a factory (i.e. a location that produces a good) and a delivery center (i.e. that stores inventory for sale or demand), however Official Notice is taken that these locations for producing and storing goods are known in the art and that produced goods add to an inventory level. It would have been obvious by one of ordinary skill in the art to modify the teachings of Holt to include these teachings since Holt teaches that his forecasting method applies to the demand for articles (i.e finished goods) raw materials or labor (see page 376 top).

Since Holt teaches that inventory can be predicted a time period in the future and that inventory is based upon current inventory and demand (see also equation 1.2) and production, it would have been obvious to one of ordinary skill in the art to determine a quantity of products to be assembled in a factory based on future predicted inventory and demand levels since it would have been understood by one of ordinary skill in the art to determine a quantity of goods to make based on future predictions of what inventory will be based upon demand since it would ensure that inventory is produced to replenish inventory sold through demand.

Regarding **Claim 2**, Holt does not teach:

2. The method according to claim 1,

wherein the at least one factory includes a plurality of factories that produces the same product, wherein, with regard to the same product, said total

assembly quantity is determined for each of the plurality of factories according a

predetermined production proportion.

However, Official Notice is taken that it is old and well known in the art of

inventory management for supply chains to have multiple factories producing finished

goods (i.e. products) according to a production proportion. This would have provided a

predictable result with Holt since Holt teaches aggregate demand, production and

inventory.

Regarding **Claim 3**, Holt teaches:

3. The method according to claim 1,

wherein said determining a standard inventory quantity includes:

determining an approximation curve of variations of a shipment quantity of

the single delivery center based on the shipment record of the single delivery

center; and

page 376 equation 1.2, seasonal variations bt, are a curve of variations (based

on seasonality of demand, i.e. shipment quantity).

determining said standard inventory quantity of the single delivery center

for the time one or more predetermined cycles ahead based on the determined

approximation curve.

Page 376 equation 1.2, F, mean inventory level as a function of t, is also a

function of demand, D (also a function of t) and various variable effects, alpha and beta.

Regarding **Claim 4**, Holt teaches

4. The method according to claim 1,

wherein said determining a standard inventory quantity includes:

determining a first approximation curve of variations of a shipment quantity of the single delivery center based on the shipment record of the single delivery center;

page 376 equation 1.2, seasonal variations bt, are a curve of variations (based on seasonality of demand, i.e. shipment quantity).

determining a gradient of the shipment quantity of the single delivery center for a current cycle t based on the determined approximation curve; and

page 376, bt is a trend in the inventory level, i.e. a prediction.

determining a (t+l)-th cycle standard inventory quantity of the single delivery center based on the determined gradient.

Page 376, equation 1.2, inventory level F is a time based (i.e. t +1) function based on at least the trend (or gradient) bt.

Regarding **Claim 5**, Holt teaches

5. The method according to claim 4,

wherein said (t+l)-th cycle standard inventory quantity of the single delivery center dSI(t+l) is determined for each product according to: dSI(t+l) = dSI(t) + a x Ω where "dSI(t)" represents a standard inventory quantity for a current cycle t, "a" represents the determined gradient, and Ω represents a factor which is predetermined according to a product type.

Page 376, inventory as a function of variables, including time t, bt is the gradient (i.e. "a"), and I is the seasonality (i.e a factor predetermined according to a product type, since seasonality is understood to be product specific).

$$f_{t+\tau} := (F_t + \tau b_t) I_{t+\tau-p}, \quad 1 \leqslant \tau \leqslant p.$$

Regarding **Claim 6**, Holt teaches

6. The method according to claim 4, further comprising: determining an (t+l)-th cycle expected shipment quantity of the single delivery center based on said determined (t+l)-th cycle standard inventory quantity of the single delivery center.

Page 376 equation 1.2, shipments (i.e demand) based on inventory of the same period.

Regarding **Claim 7**, Holt teaches

7. The method according to claim 6, further comprising: determining a (t+l)-th cycle standard inventory quantity of the at least one factory based on said determined (t+l)-th cycle standard inventory quantity of the single delivery center.

Since it is known in the art that factories product goods to replenish inventory at customer locations and Holt teaches determining inventory based upon demand, it would have been obvious to one of ordinary skill in the art to determine finished goods inventory at the factory based upon what inventory has been sold at the delivery center.

Regarding **Claims 8 and 9**, Holt teaches

8. The method according to claim 7,

wherein each of said (t+l)-th cycle expected shipment quantity of the single delivery center and said (t+l)-th cycle standard inventory quantity of the at least one factory is determined by multiplying said (t+l)-th cycle standard inventory quantity of the single delivery center by a factor.

As per above, Holt teaches multiplying demand and inventory by a factor used to predict the effects of seasonality and trend. While Holt does not explicitly teach where this factor is ½, Holt does teach dividing by 2 elsewhere (see equation 2.3 on page 378). It would have been obvious to one of ordinary skill in the art of forecasting to use a forecast factor of 1/2 since it is separately shown in the art and would have provided a predictable result as a factor in providing inventory smoothing.

Claims 10-15 recite similar limitations to those addressed by the claims above, with the addition of moving the forecasting time frame, t, into the future (i.e. t +1, t+2), As noted above, Holt teaches the ability to forecast inventory and demand (and production) into the future according to t periods.

Regarding **Claim 16**, Holt teaches

16. The method according to claim 15, further comprising:

determining a (t+l)-th cycle total assembly quantity of the at least one

factory by adding a (t+l)-th cycle adjustment assembly quantity determined based

on the actual inventory quantity of the at least one factory to a (t+l)- th cycle

expected assembly quantity of the at least one factory which has been

determined at a (t-l)-th cycle.

As noted above, Holt teaches determining inventory based upon demand and

production. Since it is noted that a factory produces goods to replenish inventory

depleted by demand, it would have been obvious to one of ordinary skill in the art at the

time of the invention to determine an assembly quantity of a factory based upon an

actual inventory quantity of a factory plus an expected assembly quantity because Holt

teaches forecasting inventory levels according to future time t periods based upon

demand and it is known that factories produce goods to replenish inventory. The

combination is predictable because it would show a factory how much to produce to

replenish forecasted inventory depleted by demand.

Claim 17 recites similar limitations regarding determining future inventory

quantity based upon actual inventory quantity and determining future assembly quantity

based upon future inventory, future production and future demand and thus would have

been obvious to one of ordinary skill in the art to combine the teachings noted above

regarding predicting inventory based upon current inventory and future levels of

demand and production, because it would have provided a predictable result in

determining future production to ensure adequate inventory levels.

        Regarding **Claim 18**, Holt teaches

        18. The method according to claim , wherein the predetermined cycle is a

week.

        Page 381 middle of page, Holt suggests working with periods of monthly

demand. However, Official Notice is taken than for some products weekly periodic

forecasting is the norm and would have been obvious to one of ordinary skill in the art

because it would have provided a predictable result with the teachings of Holt, since

Holt's teachings deal with time periods "t".

        Claims 19-38 recite similar limitations to those addressed above, and are

therefore rejected under the same rationale.

        Furthermore regarding **Claims 19-38**, Holt teaches performing the method using

computer software (page 381 bottom) but does not teach the claimed system with

storage and calculation of data, however these elements are known in the art and would

have provided a predictable result with the teachings of Holt since the result of storing

the data and calculating according to the inventory smoothing teachings of Holt would

have provided a way to automate those teachings using known in the art computer

systems.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

     6151582 by Huang teaches the management of a supply chain

     6611726 by Crosswhite teaches a method for determining optimal time series

forecasting.

     6816839 by Gung teaches demand planning for configure to order products.

Evaluation of forecasting methods for intermittent parts demand in the field of aviation:

AA Ghobbar, CH Friend - Computers and Operations Research, 2003 – Elsevier.

Designing ordering and inventory management methodologies for purchased parts

A Looman, FAJ Ruffini, L Boer - The Journal of Supply Chain Management, 2002 -

doc.utwente.nl

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on 571-272-6737. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 3-28-09

/Jonathan G. Sterrett/

Primary Examiner, Art Unit 3623